



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,558	11/05/2003	Youhei Toyoshima	062709-0116	1042

22428 7590 06/26/2007
FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

LUKS, JEREMY AUSTIN

ART UNIT	PAPER NUMBER
----------	--------------

2837

MAIL DATE	DELIVERY MODE
-----------	---------------

06/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/700,558	TOYOSHIMA, YOUHEI	
	Examiner	Art Unit	
	Jeremy Luks	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213:

Disposition of Claims

- 4) ☒ Claim(s) 17-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 17, 18, 20, 22, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922) in view of Bourne (2,297,046). Goplen teaches a muffler (Figure 9, #53) that is configured to discharge exhaust from a machine having one of an engine and a compressor, the muffler (53) comprising: an outer muffler shell (54); a first exhaust tube (exterior portion of #57); a tubular member (portion of tube #57 inside the muffler shell) formed inside the muffler shell (54), wherein a portion of the tubular member (interior portion of #57) is arranged inside the muffler shell (54) on an upstream end (end near head #55) of the muffler (53) in a direction of exhaust flow, wherein a first end (inlet end) of the tubular member (inner portion of #57) is in fluid communication with the first exhaust tube (exterior portion of #57), wherein a second end of the tubular member (end near #58) is in fluid communication (via outlet ports #59) with a space (60, 67, 69) inside of the muffler shell (54), and wherein the tubular member (inner portion of #57) is configured to attenuate acoustic energy of a first frequency band, and is arranged on a front endplate (55) of the muffler shell (54); and a

Art Unit: 2837

second exhaust tube (70) configured to discharge exhaust in the space (60, 67, 69) inside the muffler shell (54) to the atmosphere, and extending into the space (69) inside the muffler shell (54). Goplen fails to teach a resonator set protruding from and formed of the portion of the tubular member, wherein the resonator set is configured to attenuate acoustic energy of a second frequency band, which is different from the first frequency band and which modulates the first frequency band; and wherein the resonator set comprises at least two resonators; and wherein each of the resonators has a first end opening to an inner face of a tubular member and a closed second end, and a distance between the closed end of a first of the two resonators and the tubular member differs from a distance between the closed end of the second of the two resonators and the tubular member. Bourne teaches a resonator set (Figure 9, #31, 32) formed of the portion of a tubular member (30) and when used in combination with Goplen is situation on a front end plate of the muffler protruding from the tubular member; wherein the resonator set is configured to attenuate acoustic energy of a second frequency band when used in combination, which is different from the first frequency band and which modulates the first frequency band; wherein the resonator set comprises at least two resonators (Figure 9, #31, 32); and wherein each of the resonators has a first end opening (33, 34) to an inner face of a tubular member (30) and a closed second end, and a distance between the closed end of a first (31) of the two resonators and a tubular member (30) differs from a distance between the closed end of the second (32) of the two resonators and the tubular member (30). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Goplen, with the apparatus of Bourne for use in short

Art Unit: 2837

conduits where the production of higher harmonics by shock excitation is unlikely or unimportant.

2. Claims 19, 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922) in view of Bourne (2,297,046) as applied to claim 17, and further in view of Coulon (GB 2 365 066 A). Goplen and Bourne are relied upon for the reasons and disclosures set forth above. Goplen further teaches tubular member (inner portion of #57 arranged on a front endplate (55) of the muffler shell (54). Bourne further teaches wherein the resonator set (Figure 9, #31, 32) is arranged on a tubular member (30), and on a front end plate of the muffler shell when used in combination with Goplen, and comprises at least one resonator (31). Goplen and Bourne fail to teach wherein the resonator has a first end opening to an inner face of the tubular member and a closed second end, and wherein a plane defined by the closed second end is not parallel to a plane defined by the first end, and a distance between a first end of the closed end of the resonator and the tubular member differs from a distance between a second end of the closed end of the resonator and the tubular member. Coulon teaches a resonator (Figure 10, #26) having a first end opening to an inner face of a tubular member (10) and a closed second end, and wherein a plane defined by the closed second end is not parallel to a plane defined by the first end, and a distance between a first end (left side of resonator #26) of the closed end of the resonator (26) and the tubular member (10) differs from a distance between a second end right side of resonator #26) of the closed end of the resonator (26) and the tubular member (10). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Goplen as modified, with the apparatus of Coulon to

Art Unit: 2837

accommodate the significant pressure and temperature increases from a turbo-charged engine, while maintaining an effective level of noise suppression.

3. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922) in view of Bourne (2,297,046) as applied to claim 18, and further in view of De Lank (EP 0445431). Goplen and Bourne are relied upon for the reason and disclosures set forth above. Goplen and Bourne fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Goplen as modified, with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922), Bourne (2,297,046) and Coulon (GB 2 365 066 A) as applied to Claim 19 above and further in view of De Lank (EP 0445431). Goplen, Bourne and Coulon are relied upon for the reason and disclosures set forth above. Goplen, Bourne and Coulon fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Goplen as modified, with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise

Art Unit: 2837

absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

5. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922), Bourne (2,297,046) and Burdisso (6,112,514) as applied to Claim 22 above and further in view of De Lank (EP 0445431). Goplen, Bourne and Burdisso are relied upon for the reason and disclosures set forth above. Goplen, Bourne and Burdisso fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Goplen as modified, with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

Response to Arguments

6. Applicant's arguments with respect to claims 17-28 have been considered but are moot in view of the new ground(s) of rejection. The Examiner considers that the obvious combination of the references cited herein teach all of the limitations as claimed by Applicant.

7. With respect to the Goplen-Bourne combination, as stated above, a portion of the tubular member (Figure 9, #57) of Goplen is formed inside the muffler shell. Further, the Examiner considers the combination of the holes #59 formed in the tubular member

Art Unit: 2837

and chamber #60 will in fact be a resonance chamber the used in combination. Adding the Bourne reference simply changes the kind of resonator used. The combination is proper in that the Bourne resonator will prevent sounding of the fundamental frequency as well as the second harmonic of the tube. Goplen is silent as to significantly reducing sound in the resonator chamber #60. Therefor it would have been obvious to one of ordinary skill to combine the two teachings to further attenuate the noise created in the Goplen apparatus.

8. Further with respect to Applicant's arguments against Bourne; Applicant has made reference specifically to the embodiments of Bourne shown in Figures 22-23 and 29. The Examiner notes that these embodiments are very different from the resonator set shown in Figure 9, which the Examiner has relied upon for this rejection. The cited Figures by Applicant are a moot point, as the Examiner has not used their teachings to form this rejection. Further, Bourne states that the configuration of Figure 9, relied upon by the Examiner is used where *shock excitation is unlikely or unimportant* (Bourne, Page 3, Lines 21-46). Therefor the teachings relied upon from Bourne are in fact not *structures for preventing shock excitation*; despite Applicant's assertion on page 4, paragraph 4 of Arguments dated 4/26/07.

9. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Art Unit: 2837

10. In response to applicant's argument that the combination does not teach wherein the resonator set is configured to attenuate acoustic energy of a second frequency band, which is different from the first frequency band and which modulates the first frequency band, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Further, the Examiner considers Bourne to teach these limitations when combined (Bourne, Page 3, Lines 21-46).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

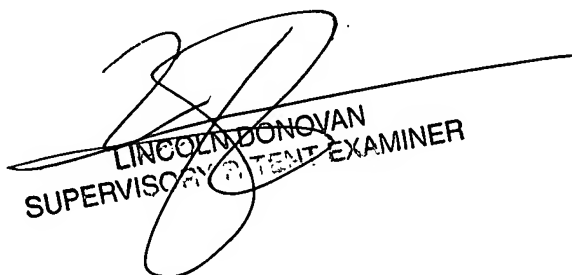
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks
Patent Examiner
Art Unit 2837
Class 181


LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER